

Attorney Docket No. 5577-320

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Peter J. Brittenham et al;

Application Serial No.: 09/864,608

Group No.: 2157

Filed: May 23, 2001

Examiner: Avim Gold

For: **DYNAMIC REDEPLOYMENT OF SERVICES IN A COMPUTING NETWORK**

Date: August 8, 2005

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**TRANSMITTAL OF APPEAL BRIEF
(PATENT APPLICATION--37 C.F.R. § 41.37)**

1. Transmitted herewith is the APPEAL BRIEF for the above-identified application, pursuant to the Notice of Appeal filed on June 8, 2005.


2. This application is filed on behalf of
☐ a small entity.

3. Pursuant to 37 C.F.R. § 41.20(b)(2), the fee for filing the Appeal Brief is:
☐ small entity \$250.00
☒ other than small entity \$500.00

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☒ Filing fee may be charged to Deposit Account 09-0461.

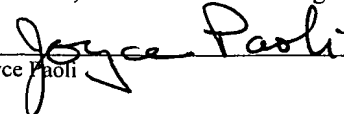
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Attorney Docket No. 5577-320

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For: DYNAMIC REDEPLOYMENT OF SERVICES IN A COMPUTING NETWORK

Group Art Unit: 2157

Examiner: Avim Gold

Confirmation No.: 3650

August 8, 2005

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APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. §41.37

Sir:

This Appeal Brief is filed pursuant to the "Notice of Appeal to the Board of Patent Appeals and Interferences" filed June 8, 2005.

It is not believed that an extension of time and/or additional fee(s) are required, beyond those that may otherwise be provided for in documents accompanying this paper. In the event, however, that an extension of time is necessary to allow consideration of this paper, such an extension is hereby petitioned under 37 C.F.R. Sec. 1.136(a). Any additional fees believed to be due may be charged to Deposit Account No. 09-0461.

Real Party In Interest

The real party in interest is assignee IBM Corporation, having a place of business at Armonk, New York.

Related Appeals and Interferences

The Appellant is aware of no appeals or interferences that would be affected by the present appeal.

Status of Claims

The Appellant appeals the final rejection of Claims 1-23 in the final Office Action of March 10, 2005 (the "Final Office Action"), which, as of the filing date of this Appeal Brief, remain under consideration. The claims at issue as included in the Appellant's response to the

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Office Action of December 7, 2004 are attached hereto as Appendix A. All of Claims 1-23 are currently pending.

Status of Amendments

The attached Appendix A presents the pending claims 1-23 as amended in the Appellant's Response of December 7, 2004. All amendments have been entered in the present case, and no amendments have been filed subsequent to the Final Office Action of March 10, 2005.

Summary of Claimed Subject Matter

The Appellant appeals the final rejection of independent Claims 1, 18 and 19 as being patentable over U.S. Patent No. 6,081,840 to Zhao ("Zhao"). Claim 18 is a means plus function analog of Claim 1, and Claim 19 is a computer program analog of Claim 1. The Appellant further appeals the final rejection of dependent Claims 2, 3, 5, 6, 20, 21, 22, and 23 as being separately patentable over Zhao. The remaining dependent claims are patentable at least as depending from a patentable independent claim.

Claim 1 is directed to a method of dynamically redeploying services in a computing network, Claim 18 is directed to an analogous system for dynamically redeploying services in a computing network, and Claim 19 is directed to an analogous computer program product for dynamically redeploying services in a computing network. Redeployment is discussed in the Application as originally filed, for example, at page 30, line 14 to page 33, line 14 with respect to Figure 11.

With respect to recitations of independent Claim 1, 18, and 19, a redeployment trigger for a selected service may be received by issuing an update request from an origin server 290 to a deployment node 260. *See*, Application, page 31, lines 5-6. One or more network locations where the selected service has been deployed from its original location at the origin server may be determined by having the deployment node 260 obtain a list from its registry 270 of the deployment facilitators 230 where the web service was deployed. *See*, Application, page 32, lines 2-3. The selected service may be programmatically removed from the origin server and programmatically replaced at the origin server by shutting down the web service, updating the service's executable code and meta information, and then starting the service again. *See*, Application, page 31, lines 2-4. The selected service may be programmatically removed from the network locations and programmatically replaced at the

network locations by the deployment facilitator 230 receiving the updated web service package from the deployment provider 280 and deploying the web service code and meta information in the run-time environment and then starting the service. *See*, Application, page 32, line 18 to page 33, line 2.

With respect to the recitations of dependent Claims 2, 20, and 21, a redeployment request may be issued from an origin server 290. *See*, Application, page 31, lines 5-6. With respect to the recitations of dependent Claims 3, 22, and 23 which state that the redeployment trigger is sent when the selected service is to be revised, the update process may start when the deployment provider updates the web service on the origin server 290. *See*, Application, page 31, lines 2-4. With respect to the recitations of dependent Claim 5, an unpublish request may be sent to the public registry 220, and when the deployment node has completed the update request from the deployment provider, an updated service description may be published to the public registry 220. *See*, Application, page 31, lines 17-18, and page 33, lines 3-6. With respect to the recitations of dependent Claim 6, the deployment node 260 may send an update request to each deployment facilitator in a list of deployment facilitators 230 where the web service was deployed. *See*, Application, page 32, lines 8-9.

With respect to means plus function recitations of independent Claim 18, means for receiving a redeployment trigger for a selected service may be provided by issuing an update request from an origin server 290 to a deployment node 260. *See*, Application, page 31, lines 5-6. Means for determining one or more network locations where the selected service has been deployed from its original location at an origin server may be provided by having the deployment node 260 obtain a list from its registry 270 of the deployment facilitators 230 where the web service was deployed. *See*, Application, page 32, lines 2-3. Means for programmatically removing the selected service from the network locations and the origin server and means for programmatically replacing the selected service at the network locations and the origin server may be provided by shutting down the web service, updating the service's executable code and meta information, and then starting the service again as discussed in the Application at page 31, lines 2-4, and by the deployment facilitator 230 receiving the updated web service package from the deployment provider 280 and deploying the web service code and meta information in the run-time environment and then starting the service as discussed in the Application at page 32, line 18 to page 33, line 2.

Regarding dependent Claim 20 (which depends from Claim 18) a redeployment request may be issued from an origin server 290. *See*, Application, page 31, lines 5-6.

Regarding means plus function recitations of dependent Claim 22, means for sending the redeployment trigger when the selected service is to be revised may be provided by the update process starting when the deployment provider updates the web service on the origin server 290. *See*, Application, page 31, lines 2-4.

Grounds of Rejection To Be Reviewed on Appeal

Independent Claims 1, 18 and 19 and dependent Claims 2-11, 14-17, and 20-23 stand rejected as being unpatentable under 35 U.S.C. §102(e) over U.S. Patent No. 6,081,840 to Zhao ("Zhao"). In addition, dependent Claims 12 and 13 stand rejected under 35 U.S.C. Sec. 103(a) as being unpatentable over Zhao further in view of U.S. Patent No. 6,704,024 to Robotham *et al.* ("Robotham").

Independent Claims 1, 18, and 19 are patentable over Zhao for at least the reasons discussed below. Dependent Claims 2-17 and 20-23 are patentable at least as per the patentability of independent Claims 1, 18, and 19 from which they depend. In addition, dependent Claims 2, 3, 5, 6, and 20-23 are separately patentable over Zhao for at least the reasons discussed below.

Arguments

I. Introduction to 35 U.S.C. § 102 Analysis

Pending Claims 1-11 and 14-23 have been rejected under 35 U.S.C. §102(e) as being anticipated by Zhao. In this regard, the Appellant wishes to note that anticipation requires that each and every element of the claim is found in a single prior art reference. *W. L. Gore & Associates Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1554, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983). Stated another way, all material elements of a claim must be found in one prior art source. *In re Marshall*, 198 U.S.P.Q. 344 (C.C.P.A 1978). "Anticipation under 35 U.S.C. § 102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention." *Apple Computer Inc. v. Articulate Systems Inc.* 57 USPQ2d 1057, 1061 (Fed. Cir. 2000). A finding of anticipation further requires that there must be no difference between the claimed invention and the disclosure of the cited reference as viewed by one of ordinary skill in the art. *See Scripps Clinic & Research Foundation v. Genentech Inc.*, 927 F.2d 1565, 1576, 18 U.S.P.Q. 2d 1001, 1010 (Fed. Cir. 1991). Additionally, the cited prior art reference must be enabling, thereby placing the allegedly disclosed matter in the possession of the public. *In re Brown*, 329 F.2d 1006, 1011, 141 U.S.P.Q. 245, 249

(C.C.P.A. 1964). Thus, the prior art reference must adequately describe the claimed invention so that a person of ordinary skill in the art could make and use the invention.

As analyzed in detail below, the Appellant submits that Claims 1-11 and 14-23 are not anticipated by Zhao. Dependent Claims 12 and 13 are also patentable at least per the patentability of independent Claim 1 from which they depend.

II. Claims 1-11 and 14-23 Are Patentable Over Zhao

Claims 1-11 and 14-23 stand rejected as being anticipated by Zhao. Zhao, however, fails to anticipate Claims 1-11 and 14-23 for at least the reasons discussed below.

A. Independent Claims 1, 18 and 19 Are Patentable Over Zhao

Independent Claims 1, 18 and 19 stand rejected under 35 U.S.C. §102(e) as being anticipated by Zhao. However, these claims are patentable for at least the reasons discussed below.

Claim 1, for example, recites a method of dynamically redeploying services in a computing network, the method including:

receiving a redeployment trigger for a selected service;
determining one or more network locations where the selected service has been deployed from its original location at an origin server;
programmatically removing the selected service from the network locations and the origin server; and
programmatically replacing the selected service at the network locations and the origin server. (Underline added.)

In support of the rejection, the Final Office Action cites column 3, lines 1-2, 9-15, and 15-18 of the Zhao patent. The Advisory Action of May 20, 2005, states that:

as seen in, column 3, lines 1-25, there is the updating of subscriptions, which is a selected service that is inherently removed and replaced, on both servers. It is inherent that the service is removed and replaced because when the update occurs the subscription is effectively removed and then replaced with the updated version.

Advisory Action, page 2. As discussed in the Manual Of Patent Examining Procedure (MPEP), the Examiner must provide rationale or evidence tending to show inherency. More particularly:

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. ... "To establish inherency, the extrinsic evidence 'must make

clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted)....

"In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990).... (Underline added.)

MPEP, Sec. 2112(IV).

The Appellant respectfully maintains that Zhao fails to teach or suggest the recitations of Claim 1 either expressly or inherently. Zhao discusses:

efficiently distributing well-composed data to remotely located, computer system end users. The system includes a source server at which all the data available to the end user is stored. ... [W]hen the data is not available locally, the local server is able to contact the source server and obtain the data for the end user when it is requested.

Zhao, col. 2, lines 38-67 (underline added). In particular, cited portions of Zhao state that:

Data stored at the local servers are collections of data files that the local servers subscribed from the source server. Initial subscriptions can be based on various factors, such as location, type of local server, user profiles, standard subscriptions, etc. After the initial subscription, usage at the local server determines the data collections which are to be stored at the local server site. The minimum subscription unit is a collection, and it is assumed that similar files are in a collection. The local server maintains a means for determining the number of times each data file collection has been used, or accessed. When the number exceeds a predetermined value over a predetermined amount of time, and the data file collection is not already stored at the local server, the local server initiates a subscription request to the source server for the collection. The local and source servers then communicate to update the subscriptions by transferring new data and updating the tables and listings of what is available and stored at each location. When the usage number of a collection is below a predetermined value over a known period of time, the local server may decide that it does not need to store that data locally and initiates a procedure of communications between the local and source servers to stop subscription of the collection, update the records and tables, and delete the collection from the local server.

Zhao, col. 3, lines 1-25. As further discussed in the Detailed Description of Zhao,

the source content server 10 contains all of the data which is ultimately desired by one or more of the users 22-28. ... [I]f the local server finds that some files are frequently being requested that it does not contain ..., a subscription request is generated by the local server to get the frequently requested file data for storage in the local server.

Zhao, col. 4, lines 42-56.

As demonstrated in the passages cited above, Zhao discusses a local server generating a subscription request to get frequently requested file data from a source content server which contains all of the data which is ultimately desired by one or more of the users. Zhao, however, fails to teach or suggest removing file data from the source content server or replacing file data at the source content server. In Zhao, a data file collection is transferred from the source server to a local server responsive to a subscription request, and tables and listings of what is available and stored at each location are updated. Zhao thus fails to teach or suggest, either expressly or inherently, "removing the selected service from the network locations and the origin server", or "replacing the selected service at the network locations and the origin server", as recited in Claim 1. (Bold and underline added.) Moreover, Zhao fails to teach or suggest (either expressly or inherently) removing a selected service from both source and local servers of Zhao and replacing the selected service at both source and local servers of Zhao.

Zhao also fails to teach or suggest determining one or more locations where the selected service has been deployed from its original location at an origin server. In contrast, Zhao discusses a system wherein usage at the local server determines the data collections which are to be stored at the local server site and the local server initiates a subscription request to the source server for the collection. Zhao, col. 3, lines 5-15. Stated in other words, the source server of Zhao does not determine locations where a selected service has been deployed because the local server initiates the subscription request.

Accordingly, the Appellant respectfully submits that Zhao fails to teach or suggest the recitations of Claim 1 and that Claim 1 is thus patentable. The Appellant further submits that Claims 18 and 19 are patentable for reasons similar to those discussed above with regard to Claim 1. In addition, Dependent Claims 2-17, and 20-23 are patentable at least as per the patentability of Claims 1, 18, and 19 from which they depend.

B. Various Dependent Claims Are Independently Patentable

As discussed above, dependent Claims 2-17 and 20-23 are patentable at least as per the patentability of Claims 1, 18, and 19 from which they depend. Various of these dependent claims are also separately patentable for reasons discussed in greater detail below.

i. Dependent Claims 2, 20, And 21 Are Separately Patentable Over Zhao

Claims 2, 20, and 21 have been rejected under 35 U.S.C. Sec. 102(e) as being anticipated by U.S. Patent No. 6,081,840 to Zhao ("Zhao"). Dependent Claim 2, for example, depends from Claim 1 and thus includes all recitations of Claim 1 as discussed above. In addition, Claim 2 recites that the redeployment trigger comprises a redeployment request from the origin server.

In contrast to the recitations of Claim 2, Zhao states that "the local server initiates a subscription request to the source server for the collection." (Zhao, col. 3, lines 14-15.) In support of the rejection of Claim 2, the Advisory Action states that:

As seen in, column 3, lines 9-18, there is the request that is sent from the local server to the source server which makes then makes the request for the updated data.

Advisory Action, page 2. As discussed in the cited portions of Zhao, the local server initiates a subscription request to the source server for a collection, and the local and source servers then communicate to update the subscriptions by transferring new data and updating the tables and listings of what is available and stored at each location. *See*, Zhao, col. 3, lines 14-18.

Zhao thus teaches away from the recitations of Claim 2. More particularly, in Claim 2, "the redeployment trigger comprises a redeployment request from the origin server," where the selected server has been deployed from its original location at the origin server. In contrast, Zhao discusses a local service initiating a subscription request to a source server (Zhao, col. 3, lines 14-15) where all data available to the end user is stored at the source server (Zhao, col. 2, lines 41-42). Stated in other words, the redeployment trigger of Claim 2 comes from the origin server and the origin server is the source of the deployment, while in Zhao, the local server initiates the request and the local server is the recipient of the resulting transfer.

Accordingly, Zhao teaches away from a redeployment request from an origin server (where the origin server is the original location of the selected service being deployed), and

Claim 2 is thus separately patentable. In addition, Claims 20 and 21 are separately patentable for reasons similar to those discussed above with respect to Claim 2.

ii. Dependent Claims 3, 22, And 23 Are Separately Patentable Over Zhao

Claims 3, 22, and 23 has been rejected under 35 U.S.C. Sec. 102(e) as being unpatentable over U.S. Patent No. 6,081,840 to Zhao ("Zhao"). Dependent Claim 3, for example, depends from Claim 1 and thus includes all recitations of Claim 1 as discussed above. In addition, Claim 3 recites sending the redeployment trigger when the selected service is to be revised.

In contrast to the recitations of Claim 3, Zhao discusses initiating a subscription request when a number of times a data file collection has been used or accessed exceeds a predetermined value. (*See*, Zhao, col. 3, lines 11-15.) In support of the rejection of Claim 3, the Advisory Action states that:

as seen in column 3, lines 9-15, there is a subscription request that is initiated when a tracking number exceeds a predetermined value. The tracking number is the indicator as to when the service needs to be revised.

Advisory Action, page 2.

Accordingly, the cited portions of Zhao discuss initiating a subscription request when a number of times a data file collection has been used or accessed exceeds a predetermined value. *See*, Zhao, col. 3, lines 11-14. In contrast, Claim 3 recites sending a redeployment request when a selected service is to be revised. Zhao thus fails to teach or suggest sending a redeployment request when a selected service is to be revised, and Claim 3 is thus separately patentable. In addition, Claims 22 and 23 are separately patentable for reasons similar to those discussed above with respect to Claim 3.

iii. Dependent Claim 5 Is Separately Patentable Over Zhao

Claim 5 has been rejected under 35 U.S.C. Sec. 102(e) as being unpatentable over U.S. Patent No. 6,081,840 to Zhao ("Zhao"). Dependent Claim 5 depends from Claim 1 and thus includes all recitations of Claim 1 as discussed above. In addition, Claim 5 recites unpublishing the selected service after receiving the redeployment trigger, until completion of programmatically removing the selected service and programmatically replacing the selected service, and then republishing the selected service thereafter.

In support of the rejection of Claim 5, the Final Office Action states that at col. 3, lines 15-18, "Zhao discloses transferring of data and updating tables and listings." (Final Office Action, page 4.) Transferring of data and/or updating tables and listings, however, fails to teach or suggest unpublishing a selected service. Accordingly, Claim 5 is separately patentable over Zhao.

iv. Dependent Claim 6 Is Separately Patentable Over Zhao

Claim 6 has been rejected under 35 U.S.C. Sec. 102(e) as being unpatentable over U.S. Patent No. 6,081,840 to Zhao ("Zhao"). Dependent Claim 6 depends from Claims 2 and 1 and thus includes all recitations of Claims 2 and 1 as discussed above. In addition, Claim 6 recites sending a subsequent redeployment request to each of the network locations, responsive to receiving the redeployment request from the origin server.

In support of the rejection of Claim 6, the Final Office Action cites col. 3, lines 9-15 of Zhao. As discussed above with respect to Claim 2, however, Zhao fails to teach or suggest a redeployment request from the origin server. Accordingly, Zhao also fails to teach or suggest sending a subsequent redeployment request to each of the network location servers. In contrast, Zhao discusses a subscription request initiated by a local server. (*See*, col. 3, lines 14-15.) Accordingly, Claim 6 is separately patentable over Zhao.

IV. Conclusion

In summary, the Appellant respectfully submits that the cited art fails to teach or suggest all recitations of independent Claims 1, 18, and 19 for at least the reasons discussed above. The remaining dependent claims are patentable at least as depending from patentable independent Claims 1, 18 and 19. Moreover, dependent Claims 2, 3, 5, 6, 20, 21, 22, and 23 are separately patentable over the cited art for at least the reasons discussed above. Accordingly, the Appellant respectfully requests reversal of the rejection of Claims 1-23 based on the cited references.

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Date of Signature: August 8, 2005

Appendix A: Claims

1. (rejected) A method of dynamically redeploying services in a computing network, the method comprising:

receiving a redeployment trigger for a selected service;
determining one or more network locations where the selected service has been deployed from its original location at an origin server;
programmatically removing the selected service from the network locations and the origin server; and
programmatically replacing the selected service at the network locations and the origin server.

2. (rejected) The method according to claim 1, wherein the redeployment trigger comprises a redeployment request from the origin server.

3. (rejected) The method according to claim 1, further comprising:
sending the redeployment trigger when the selected service is to be revised.

4. (rejected) The method according to claim 1, further comprising:
receiving client requests for the selected service;
serving the received requests from the network locations prior to receiving the redeployment trigger; and
serving the received requests using the replaced service after programmatically removing the selected service and programmatically replacing the selected service.

5. (rejected) The method according to claim 1, further comprising:
unpublishing the selected service after receiving the redeployment trigger, until completion of programmatically removing the selected service and programmatically replacing the selected service, and then republishing the selected service thereafter.

6. (rejected) The method according to claim 2, further comprising:
sending a subsequent redeployment request to each of the network locations, responsive to receiving the redeployment request from the origin server.

7. (rejected) The method according to claim 6, wherein programmatically removing the selected service further comprises:

receiving the subsequent redeployment request at a selected one of the network locations;

programmatically shutting down the selected service at the selected one, responsive to receiving the subsequent redeployment request; and

programmatically removing executable code which implements the selected service from a run-time environment of the selected one, subsequent to the programmatically shutting down.

8. (rejected) The method according to claim 6, wherein programmatically replacing the selected service further comprises:

issuing a deployment request for the selected service from a selected one of the network locations;

receiving a response message at the selected one of the network locations, the response message containing a replacement for the selected service; and

deploying the replacement for the selected service at the selected one of the network locations.

9. (rejected) The method according to claim 8, wherein the deployment request comprises a service description of the selected service encoded in a standardized service description notation.

10. (rejected) The method according to claim 9, wherein the service description comprises an interface definition of a dynamic deployment service and an implementation definition of the dynamic deployment service.

11. (rejected) The method according to claim 10, wherein the dynamic deployment service resides on the origin server.

12. (rejected) The method according to claim 11, wherein the issued deployment request comprises a SOAP ("Simple Object Access Protocol") request.

13. (rejected) The method according to claim 11, wherein the issued deployment request comprises an XML ("Extensible Markup Language") Protocol request.

14. (rejected) The method according to claim 11, wherein the issued deployment request identifies the selected service.

15. (rejected) The method according to claim 11, wherein the issued deployment request provides information about run-time conditions on the selected one of the network locations.

16. (rejected) The method according to claim 8, wherein the replacement comprises executable code.

17. (rejected) The method according to claim 16, wherein the executable code is automatically adapted to the run-time conditions on the selected one of the network locations.

18. (rejected) A system for dynamically redeploying services in a computing network, comprising:

means for receiving a redeployment trigger for a selected service;

means for determining one or more network locations where the selected service has been deployed from its original location at an origin server;

means for programmatically removing the selected service from the network locations and the origin server; and

means for programmatically replacing the selected service at the network locations and the origin server.

19. (rejected) A computer program product for dynamically redeploying services in a computing network, the computer program product embodied on one or more computer-readable media and comprising:

computer-readable program code configured to receive a redeployment trigger for a selected service;

computer-readable program code configured to determine one or more network locations where the selected service has been deployed from its original location at an origin server;

computer-readable program code configured to programmatically remove the selected service from the network locations and the origin server; and

computer-readable program code configured to programmatically replace the selected service at the network locations and the origin server.

20. (rejected) The system according to Claim 18 wherein the redeployment trigger comprises a redeployment request from the origin server.

21. (rejected) The computer program product according to Claim 19 wherein the redeployment trigger comprises a redeployment request from the origin server.

22. (rejected) The system according to Claim 18 further comprising:
means for sending the redeployment trigger when the selected service is to be revised.

23. (rejected) The computer program product according to claim 19 further comprising:

computer-readable program code configured to send the redeployment trigger when the selected service is to be revised.

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Appendix B: Evidence

No evidence pursuant to 37 CFR Sec. 1.130, Sec. 1.131, or Sec. 1.132 is relied upon by Appellant in the appeal.

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Appendix C: Related Proceedings

There are no related proceedings pursuant to 37 C.F.R. Sec. 41.37.